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ABSTRACT

This paper describes the development and use of a computer aided instruction (CAI) software program for the teaching of Spanish for special purposes at Purdue University in West Lafayette, Indiana. The program is designed to: (1) motivate students to use the computer by making it a non-threatening medium through individualization of the learning process; (2) make the process interactive by allowing the student to visualize language; and (3) achieve an eclectic learning process by using hypermedia methods to distort language. The software was developed for use in intermediate-level Spanish courses to reinforce material presented in class. The practice drills consist of matching pairs of words, multiple choice questions, cloze exercises, and unscrambling jumbled sentences. Student responses are tabulated both for direct student feedback and instructor review. An appendix provides samples of the different types of drill screens. (MDM)

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COMPUTER BASED-LANGUAGE TOOLS FOR THE TEACHING OF LANGUAGE FOR A SPECIAL PURPOSE

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INTRODUCTION

This paper describes Computer Aided Instructional (CAI) software developed by a language teacher and a computer scientist as part of a system of Computer Based-Language Tools. Software and other technical aspects associated with the system have been described elsewhere (Cooks and Henstock,1993). This paper addresses the pedagogical value of using a computer for the teaching of technical language . In the design of the program, attention was given to three desiderata identified by Vance Stevens (1989): 1) Intrinsically Motivational, 2) Truly Interactive and 3) Eclectically Selective.

METHODS

The above criteria were achieved by deliberately eschewing a behaviorist approach and adopting a more interactive humanistic approach to computer-assisted language learning. The goal was 1) to motivate students to use the computer by making it a non-threatening medium through individualization of the learning process, 2) to make the process interactive by allowing the student to visualize language, and 3) to achieve an eclectic learning process by using hypermedia methods to distort language.

Attention was also given to the needs of the instructor by creating the data in a text-file format in order to speed up the process of the making of drills. The program is written so that text can be entered through a word processor or obtained by

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scanning it into the data file. Not only is the process of distortion of language automated but so also is the process of randomization. The automation process eliminates one step in the creation of the drills. The instructor no longer needs to type the question first and then also type the correct answer in the proper screen. This is seen from the following example:

AUTHOR MODE
SCREEN 1
se aplica a trabajos intelectuales
Salario/Sueldo

SCREEN 2
Sueldo

OUR SYSTEM
SCREEN 1
se aplica a trabajos intelectuales, Sueldo

With regard to automation of the randomization process, a step is also eliminated and in addition advantage is taken of the capability of computers to jumble sentences in random order so that no single combination will have the same sequence of words. This assures that students working at adjacents terminals in a lab, will be forced to work on a one to one basis with the computer and not be dependent on other students for the correct answer. An example of this is shown below:

AUTHORING MODE
SCREEN 1
trabajos aplica a intelectuales se

SCREEN 2
Se aplica a trabajos intelectuales

OUR SYSTEM
SCREEN 1
<Se aplica> <a trabajos> <intelectuales>
(The words inside <> will be kept together when the computer jumbles them, and the order will be different in every screen)

The most innovative aspect of this software lies in the unique way in which the grading system is set up in order to avoid 1)student access to the grades and 2) time consuming efforts by the instructor.
In some other systems one has to copy and transfer files to a disk in order to manually process some sixty or more grades files per session. Automation of this function was achieved by adding a grade routine that, in seconds, changes the individual students files for a particular lab lesson, into an Excel format file that contains the name of all the students in that class. This means that only one list per session needs to be added to a cumulative Excel grade spread sheet for grade calculation. In addition we have also increased the speed of the process of installing data in the computer lab. This process can take from one day to 3 hours to complete with other systems, depending on the set up in a particular Laboratory. Instead, the present system operates with the new data immediately after installation. This means that the instructor can input the new data at the beginning of a laboratory practice period instead of having to find extra time outside the lab hour to install the new drills.

TEACHING LANGUAGES FOR SPECIAL PURPOSES

There is no doubt that if computer-aided instruction has proven to be beneficial for any type of language learning, it is particularly well-suited for the teaching of languages for special purposes. This kind of instruction aims at achieving some proficiency (mostly in reading comprehension and writing techniques) within the constrains of a semester three-

hour course, often in a particular technical or business field. In addition, such courses attract a variety of students who specialize in different fields (some of them not at all related to the particular technical field around which the language course may be constructed) and who also are at different stages of language acquisition. This variation in technical background and language proficiency causes a problem when trying to find the average level to best address such a heterogeneous class and equally motivate all students. Furthermore, in colleges, such as Purdue, where a business line has not yet been fully developed, an offering of only one advanced 400 level course per academic year adds further requirements. With the growing interest in a global economy and international cooperation, this kind of course has been overcrowded, further compounding the difficulty. It takes an instructor with a lot of motivation, hard work and plenty of experience to meet the students' needs and still have those students reach some level of proficiency in one semester.

The software described here was designed to reinforce the material presented in class, rather than to expand the textbook with further readings. To accelerate the process of reading and writing in a technical language the material presented in the textbook is enhanced by using the computer to motivate students and make the learning process more enjoyable.

DESCRIPTION OF DRILLS

The drills follow a logical progression of difficulty. They start with recognition of key words, and the selection of pertinent concepts, idioms, or referentials neccessary to orientate the student in the interpretation of a particular discourse. They end with the more challenging form of reading in context and the free-form creative imitation of a style.

The templates of the drills are are based on matching pairs, multiple choice, cloze exercises and jumbled sentences. These formats were selected for their flexibility in adapting to different stages of language learning, from simple vocabulary and grammar exercises to more advanced building of language acquisition skills. These are also familiar drill formats for the students since they are the most commonly use exercises in language textbooks.

Students control the pace of the drill by selecting any of the option buttons available: <check answer>, <continue>, <go back to menu>, <explain> or <quit>. The instructor allows for the different levels of proficiency in the class by selecting the number of tries a student can have per drill. Advanced students are able to finish the drill in one or two tries; less advanced students may need to use all the possible tries before they can come up with the appropriate answer.

The check button offers immediate feedback by providing the correct answer, vis á vis the student answer. The continue button if pressed at the end of a drill, not only will go on to the next drill but also display the grade the student has so far in the practice session.

The Excel format provides not only the grade as a percentage, but also puts a heading with the name of the exercise and generates a list of all the incorrect jumbled sentences the students have written in that session. This instant feed back allows the instructor to identify and emphasize those aspects of the language in which the students have done poorly. The end result is a better understanding by both the student and the instructor of the process of language learning.

THE READING PROCESS

Since Krashen proposed his model of languague acquisition (1982) a whole new way of teaching languages has come into being. The emphasis now is on the process the learner goes through in order to acquire language, and on how

best to simulate that process in a classroom situation. Language teachers stress the importance of the social aspect of language learning as a process of communication, negotiation of meaning and unconsciously acquiring the structure of the language through imitation. For Krashen there are two stages in this process: learning a language and acquiring a language. The first stage can be linked to the beginning of language learning, and consists in consciously applying learned rules to the language. The second, could be seen as corresponding to the last two years of language learning, since it entails automating the first stage and unconsciously acquiring language through communication, imitation and negotiation. For Krashen, only in this second stage of language does acquisition, the process of acquiring a language, takes place. This occasioned considerable criticism by other scholars. Long (1981, 1983) argues that the process is more complex and that one cannot separate it into two neatly divided stages, since both instruction and automation are taking place all the time. Nevertheless, Krashen's model, as Kramsch (1992) points out, offers for the first time a framework for conceptualizing our ideas about the process of acquiring language.

Theories of the process of reading and writing have likewise sought to apply universal techniques used for discourse comprehension in any language. Some of these techniques were applied here in the design of the templates. Particular attention was given to the different meaning and symbolism words take when in contact with one another in a text, or when conceptualizing a distinctive world view pertaining to a particular culture. Words in context were reinforced by the segmentation of the text into small coherent units of meaning, in the form of a cloze exercise. Culture conceptualization was achieved, by identifying those particular concepts in the reading that pointed towards a visualization of a familiar script in the American culture, but that produced a very different association and imagery when transferred into the Hispanic culture. Writing takes the form of reconstruction of a given set of jumbled sentences or phrases that tests the

students ability to express conceptual ideas previously introduced in class discussions.

The lack of these interpretative skills described in the previous paragraph have caused business a lot of costly misunderstandings. Doyle, Fryer and Cere (1991) have identified several of them. One of the better known is the fiasco of General Motors in trying to penetrate the Hispanic market promoting "Nova". Unaware of the meaning of <no + va> in Spanish as "It does not go", their car "Nova" was immediately associated with a "lemon" not a "star". These techniques of context reinforcement, output hypothesis and conceptualization, and the particular templates where they are used are the subject of this section of the paper.

Matching Pairs

This template is a vocabulary drill with seven pairs of data presented side by side. By presenting more than one word at a time, comprehension of vocabulary is accelerated by breaking down a difficult concept into stages, or by showing the relationships among different activities of the same theme. This template is illustrated below by presenting the relationship among different types of work and different types of remuneration for those works.

This drill acts as a filter of new information. It speeds up the reading process by providing an "Advanced Organizer" (Rumelhart 1977) that helps the reader of a second language to understand not only new terminology but also cultural or conceptual differences between constructs in different languages.

MULTIPLE CHOICE

The multiple choice drill presents the student with one statement or question at a time. Like the the matching pairs, this drill is part of the Advanced Organizer. Although it represents a higher degree of difficulty by allowing longer and more difficult sentences in the formulation of the concept, it

stimulates a faster more efficient reading comprehension by simplifying the technical discourse to meet the student ability level. With this shorter less technical version than the complete text offers, and the clues provided in the choices, a faster more efficient reading comprehension is achieved.
In the next two templates a variety of reading techniques are applied. Authentic texts are imported or scanned into the templates, and the discourse is then segmented into smaller coherence units, taking into consideration not only text properties but also as James Allen suggested (Allen 1987) notional and functional clues in the identification of the rhetorical structure of the discourse. Examples of these are, narrative, classification, argument ...etc. This information helps students to better understand, organize and remember the information.

FIL-IN-THE-BLANKS

In fill-in-the-blanks a text is segmented into smaller units or scripts, and then certain phrases, idioms or cue words are replace by numbered blanks <*1*>. Below the text the answers are presented at random. This reinforces the technique of visualizing or anticipating a script. If the text deals with specific culturally determined schemata, this exercise develops vital skills for better comprehension of a foreign discourse.

JUMBLED SENTENCES

Jumbled sentences tests the students ability to express conceptual ideas using a given set of phrases, based on the readings discussed in class. It reinforces the reading process that has gone before and at the same time adds more freedom of interpretation and interaction with the computer for the student.

The drawback to this kind of excersice has been the fact that due to the complexity of the drill, only simple sentences up to eight single words in length, could be used. This factor

made limited the use of the method at the intermediate and advanced level of the language. This difficulty was overcome by grouping words or phrases in brackets: <word> <word1 word2 word3>. This enhances comprehension and reinforces the structure of the language in an automatic way. Students have to form a correct sentence by typing the paragraph or sentence in the right order. They are allowed two to three attempts to change the order before checking for the correct answer.

It is in this exercise where the student ability to synthesize and apply what was introduced in the other drills take place. One can say, that if they are succesful in producing a number of correct sentences, they have indeed mastered the language and concepts of that particular theme.

CONCLUSION

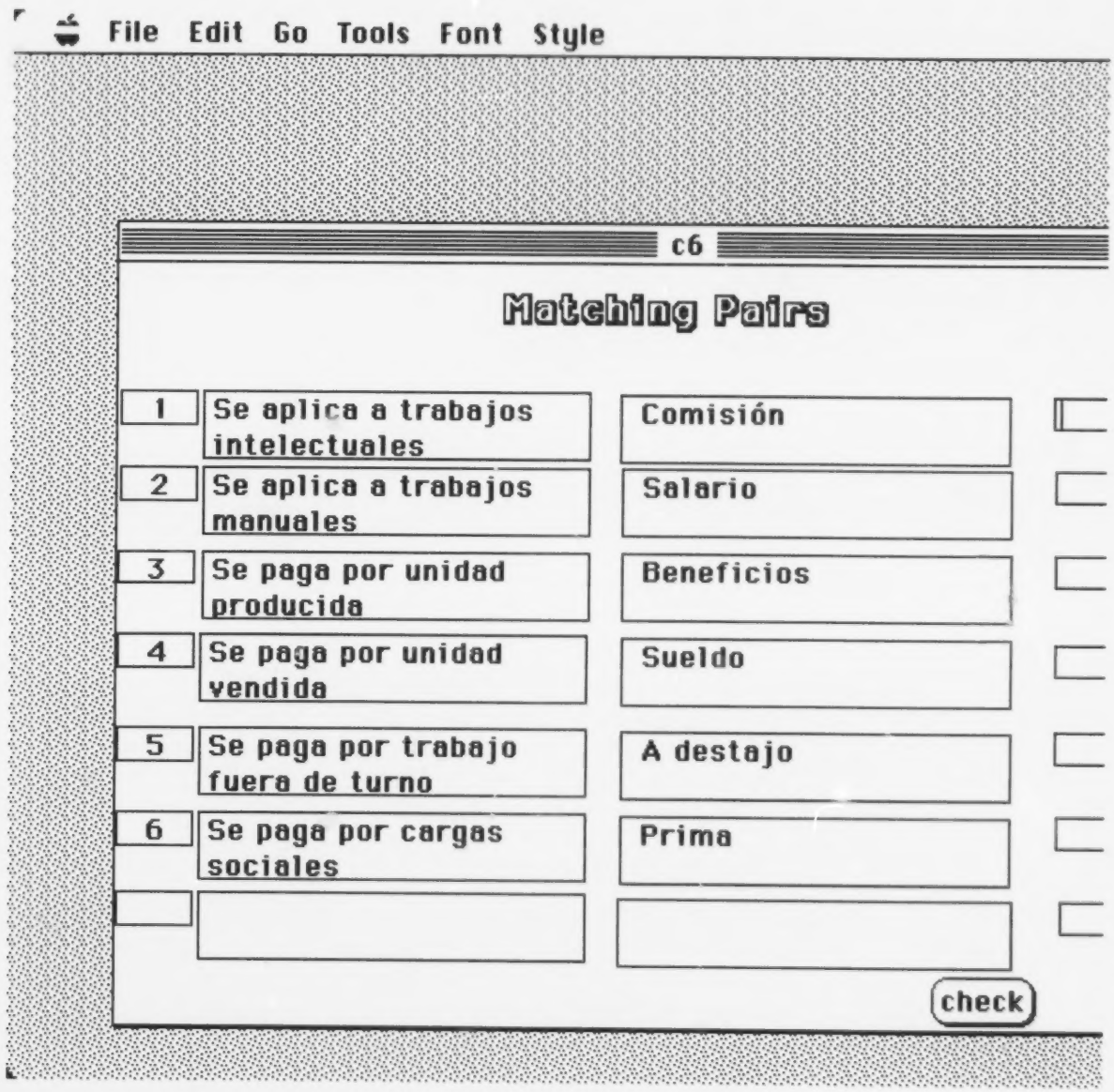
This system addresses some of the problems of teaching a language for special purposes, and offers some solutions to accelerate and individualize the process of reading comprehension in a technical language.

It suggests that two factors are to be considered when assessing computerized courseware for Second Language Acquisition, 1) speed and efficiency to accelerate the process of computerized language instruction, and 2) a solid pedagogical base to make the learning process work.

The first factor was addressed by adding some innovations to the process of authoring through automation, randomization and simplification.

The second factor was met by incorporating ideas about the process of reading and writing with computers from scholars in their respective fields.

The result was a software that is flexible enough to incorporate different areas of language teaching: grammar, syntax, reading comprehension, and conceptualization, and also adaptable to different levels of language proficiency. It incorporates basic techniques pertaining to the process of reading comprehension by combining contextual reinforcement, anticipation and syntactic structure.


File Edit Go Tools Font Style
c6
Matching Pairs
1
Se aplica a trabajos intelectuales
2
Se aplica a trabajos manuales
3
Se paga por unidad producida
4
Se paga por unidad vendida
5
Se paga por trabajo fuera de turno
6
Se paga por cargas sociales
Comisión
Salario
Beneficios
Sueldo
A destajo
Prima
check

Multiple Choice

c6

La Revolución Sandinista en Nicaragüa estableció una economia con control estatal

A Mixto

B Absoluto

C Libre

Click on one of the letters: (A, B, C, etc.)

Fill-In-The-Blanks

c6

Acabamos <*1*> varias tiendas <*2*> ciudad para vender <*3*> mexicanos y puertorriqueños <*4*> a todos nuestros clientes.

alimentos, en esa, de alta calidad, de abrir,

check answers

Jumbled Sentences

c6

Quest
Total Questi

<el registro> <El inventario permanente> <y salidas> <de
efectuarse> <consiste en> <en el momento> <de las entra

check answer

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